

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of:	Rath	Docket No.:	49091
Serial No.:	09/701,587	Confirmation No.:	5855
Filing Date:	11/30/2000	Examiner:	LU, C CAIXIA
Customer No.:	26474	Art Unit:	1713

---

For: Method for producing highly reactive polyisobutenes

---

Honorable Commissione  
for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

REPLY BRIEF UNDER 37 C.F.R. §41.41

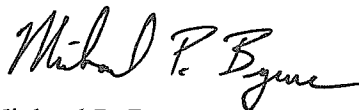
Sir:

This is a Reply Brief to the Examiner's Answer of September 21, 2007. Please charge any shortage in fees due in connection with the filing of this paper, including Extension of Time fees, to Deposit Account 14.1437. Please credit any excess fees to such account.

NOVAK DRUCE + QUIGG, LLP  
1300 Eye St. N.W.  
Suite 1000 West  
Washington, D.C. 20005

Phone: (202) 659-0100  
Fax: (202) 659-0105

Respectfully submitted,  
NOVAK DRUCE + QUIGG, LLP



Michael P. Byrne  
Registration No.: 54,015

Status of claims: Claims 12, 14 – 17 and 21 – 35 are pending in the application. Claims 12, 14 – 17 and 21 – 35 stand rejected and are being appealed. Claims 1 – 11, 13, 18 – 20 are canceled.

Grounds of rejection to be reviewed on appeal: whether the Examiner erred by rejecting claims 12, 14 – 17 and 21 – 35 under 35 U.S.C. §103(a) over *Rath* (US 5,408,018).

Arguments:

The *Rath* reference illustrates that the use of ethers which lack a tertiary alkyl group results in a significant deterioration of the success in forming terminal vinylidene groups in the polyisobutenes a person of ordinary skill in the art could not reasonably expect that a process which does not employ the tertiary ethers of Rath would yield the highly reactive polyisobutenes referenced in the present claims.

In the Examiner's Answer mailed September 21, 2007, the Examiner agrees that "Rath does expressly teach that the dialkyl ether having at least one tertiary alkyl is preferred."<sup>1</sup> The Examiner agrees that "Example 8 shows [that] inferior isobutene conversion and [a] lower percentage of terminal double bond[s] in the polyisobutene [are achieved,] when di(n-butyl) ether is used compared to Examples 6 and 7 where 2-butyl tertbutyl ether is used."<sup>2</sup> Yet, the Examiner maintains that a skilled artisan would not have had enough skill to conclude that the *Rath* reference "teaches that poorer results are achieved when the ether utilized in the catalyst composition does not contain at least one tertiary alkyl group."<sup>3</sup> Instead, the Examiner argues that since "a secondary alkyl ether is within the scope of Rath's disclosure ... a skilled artisan would have been motivated to [use] the simple symmetrical ether such as diisopropyl ether and di(2-butyl) ether...."<sup>4</sup> The Examiner asserts, without providing support, that a skilled artisan would have arrived at the claimed invention "for at least economical reasons and increasing isobutene

---

<sup>1</sup> Page 6, lines 1 – 2 of the Examiner's Answer.

<sup>2</sup> Page 6, lines 2 – 5 of the Examiner's Answer.

<sup>3</sup> Page 5, lines 19 – 21 of the Examiner's Answer.

<sup>4</sup> Page 6, lines 7 – 9 of the Examiner's Answer.

conversion and percentage of terminal double bond.”<sup>5</sup>

Appellants have provided the Declaration of Dr. Hans-Peter Rath to provide a direct comparison between the instant invention and the process according to the *Rath* reference. The declaration demonstrated that the claimed process provides an unexpected increase in reactivity over that of the process utilizing isopropyl tert-butyl ether. Thus, the declaration directly contradicted the conclusion that a skilled artisan would have drawn from the *Rath* reference, i.e., that poorer results are achieved when the ether utilized in the catalyst composition does not contain at least one tertiary alkyl group.

Since the Examiner urges that a skilled artisan would not have had enough skill to conclude that the *Rath* reference “teaches that poorer results are achieved when the ether utilized in the catalyst composition does not contain at least one tertiary alkyl group[,]”<sup>6</sup> it is not surprising that the Examiner argues that the Declaration filed on January 16, 2003, “does not provide any unexpected result.”<sup>7</sup> The Examiner criticizes the Declaration for three reasons:

1. a comparison is not made to “Rath’s preferred ... Example 6,”<sup>8</sup>
2. “the ratios among boron trifluoride, alcohol and dialkyl ether ... are not the same[,]”<sup>9</sup> and
3. “Appellant[s] only [provide] one Example which is not representative of the full scope of the claims.”<sup>10</sup>

The Examiner’s line of reasoning fails to recognize that “[e]vidence of unobvious or unexpected[,] advantageous properties, such as superiority in a property the claimed compound shares with the prior art, can rebut prima facie obviousness.”<sup>11</sup> Based on the teaching of the *Rath* reference, a skilled artisan would have expected Example A of the Declaration to result in a lower reactivity % than the comparative example. Yet, the opposite is shown. “Evidence that a compound is unexpectedly superior in one of a spectrum of common properties . . . can be enough to rebut a prima facie case of

---

<sup>5</sup> Page 6, lines 9 – 10 of the Examiner’s Answer.

<sup>6</sup> Page 5, lines 19 – 21 of the Examiner’s Answer.

<sup>7</sup> Page 6, line 12 of the Examiner’s Answer.

<sup>8</sup> Page 6, line 13 of the Examiner’s Answer.

<sup>9</sup> Page 6, lines 20 – 21 of the Examiner’s Answer.

<sup>10</sup> Page 7, lines 1 – 2 of the Examiner’s Answer.

<sup>11</sup> MPEP §716.02(a), citing *In re Chupp*, 816 F.2d 643, 646, 2 USPQ2d 1437, 1439 (Fed. Cir. 1987).

obviousness.”<sup>12</sup> Finally, the Examiner’s argument that the Declaration does not demonstrate unexpected results because “Appellant[s] only [provide] one Example which is not representative of the full scope of the claims[,]”<sup>13</sup> should not be deemed to be persuasive, because “[n]o set number of examples of superiority is required.”<sup>14</sup> The declaration provides a skilled artisan with ample evidence of unexpected results.

---

<sup>12</sup> MPEP §716.02(a), citing *In re Chupp*, 816 F.2d 643, 646, 2 USPQ2d 1437, 1439 (Fed. Cir. 1987).

<sup>13</sup> Page 7, lines 1 – 2 of the Examiner’s Answer.

<sup>14</sup> MPEP §716.02(a), citing *In re Chupp*, 816 F.2d 643, 646, 2 USPQ2d 1437, 1439 (Fed. Cir. 1987).